

**WHAT IS CLAIMED IS:**

1. A method for diagnosing disease in an experimental sample comprising:  
 measuring the physiological state of said experimental sample;  
 selecting reference samples of known disease state that are similar to said  
 experimental sample in physiological state; and  
 comparing said experimental sample to said reference samples to identify  
 the reference sample that matches said experimental sample; and  
 diagnosing the experimental sample with the disease of the matching  
 reference sample.

2. A method for diagnosing disease in an experimental sample comprising:  
 measuring the physiological state of said experimental sample;  
 selecting reference samples of known disease state that are similar to said  
 experimental sample in physiological; and  
 comparing the expression profile of said experimental sample to the  
 expression profile of said reference samples to identify the reference sample that  
 matches said experimental sample; and  
 diagnosing the experimental sample with the disease of the matching  
 reference sample.

3. A method for identifying markers to assay efficacy of drug therapies in  
 women comprising:  
 measuring the expression profile of a female sample before drug treatment  
 and comparing it to the expression profile of a sample from the same subject after  
 drug treatment.

4. A method to diagnose physiological disorders comprising:  
 comparing a gene expression profile from an experimental sample to a  
 gene expression profile that represents an average of a plurality of reference  
 samples with matching indicators of physiological status.

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5. A method to identify the physiological status of a sample of unknown origin comprising:  
 generating an expression profile from the experimental sample, and  
 comparing said expression profile to a plurality of expression profiles of known physiological state.

6. A method to identify markers of different physiological states in humans comprising:  
 matching a sample from a first physiological state to a sample from a second physiological state;  
 comparing the expression profiles from said first and second physiological states; and  
 identifying genes that are differentially expressed in said first and second physiological states.

7. The method of claim 5 wherein said samples are matched according to pharmacological state.

8. The method of claim 5 wherein said samples are matched according to disease state.

9. The method of claim 5 wherein said samples are matched according to pharmacological state and disease state.

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